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ABSTRACT

This paper explores six phases of a research project designed specifically to engage high school students as co-researchers in a multisite qualitative study exploring perceptions of tobacco use among high school students in four schools. It describes how university researchers collaborated with the high school students and summarizes seven major themes that emerged from the data across the four schools. The primary research team, consisting of a physician, three university faculty members, and two doctoral students, collaborated with 66 high school students in six research phases from recruiting students through writing up the results. The seven themes that emerged from the study were: (1) desensitization to tobacco use because of exposure; (2) reactions to tobacco use; (3) reasons teens smoke; (4) lack of enforcement of school policies; (5) the consequences of smoking; (6) quit attempts; and (7) the lack of media influence. The project illustrates that university faculty can partner with high school students successfully to conduct research projects with students. Implications include the potential for introducing qualitative research into the high school curriculum and the advantages of involving university faculty and high school students in collaborative projects. Appendixes contain a list of steps for qualitative data analysis and an activity guide for involving high school students as co-researchers. (Contains 2 tables and 11 references.) (SLD)

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Engaging High School Students as Co-Researchers in Qualitative Research: Logistical, Methodological and Ethical Issues

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Engaging High School Students as Co-Researchers in Qualitative Research: Logistical, Methodological and Ethical Issues

Introduction

Despite the recent popularity of participant involvement in research, such as in action research, participant research, and narrative inquiry, little is known about active collaboration between university researchers and high school students. This paper explores six phases of a research project specifically designed to engage high school students as co-researchers in a multi-site qualitative study exploring perceptions of tobacco use among high school students in four high schools. It describes how university researchers collaborated with high school students and summarizes seven major themes that emerged from the data across the four cases. It discusses the challenges and implications of involving high school students as co-researchers in university projects and of teaching high school students about qualitative inquiry. In the end, it provides an activity guide that others could use as a template for involving high school students as co-researchers in site-based research.

Need for the Study

Current methodological interest in participatory action research (Reason, 1994), narrative inquiry (Clandidin & Connelly, 1999), and ethnographic field experiences (Atkinson & Hammersley, 1994) has contributed to a continued assessment of the role of participants as active collaborators in research. Collaboration raises methodological issues in qualitative inquiry, such as the aim to make research more practically relevant to educational sites, the need to lessen the potential power imbalance between inquirers and participants, and the goal of empowering individuals' voices (Grafanaki, 1996).

Collaboration with high school students also raises ethical issues, such as the need to follow ethical guidelines for informed consent, and protect participant anonymity and the confidentiality of the data.

Although modest research exists about collaboration between university school personnel and teachers (e.g., Sperling, 1989), the involvement of students, especially high school students, is an underexplored issue. By involving high school students in a university-sponsored research project, we learned how students can play a significant role in the research process, add insight into a case study project, and develop an understanding of qualitative research. Since qualitative research has been accepted as a viable methodological approach in graduate education, and introduced into the undergraduate curriculum (Staik & Rogers, 1993), it is timely to begin discussions about teaching it in high school courses. Our "lessons learned" from involving high school students as co-researchers can provide useful insight into new applications for qualitative research.

Several audiences will be interested in this paper. It documents our work with high school students throughout the research process and provides a template that other researchers could follow to engage high school students as co-researchers. High school teachers, curriculum specialists and administrators may be interested in the format and content used to introduce high school students to qualitative research and the strategies used to engage students in field-based research projects. For qualitative methodologists, this paper also initiates a novel dialogue about incorporating qualitative inquiry into high school courses, suggests methodological issues for further exploration, and provides a guide for involving high school students as co-researchers.

The Research Process - Phases and Methods

We conducted a multi-site qualitative study exploring student, administrator, teacher, and support staff perceptions of tobacco use at four Midwestern high schools. The project was part of a multi-year study funded by the American Lung Association. Our primary research team consisted of a family practice physician, three university faculty, and two doctoral students (one of whom was a high school teacher). Three of the four high schools were located in major metropolitan areas and the fourth was located in a small, rural community. The sites were purposefully selected to provide geographic, ethnic, and socio-economic diversity. The student populations at the four schools varied from 550 to 2,000 and our fieldwork was conducted during one academic semester (Spring, 1999).

A unique component of this study was our involvement of high school students as co-researchers. Ginsburg (1996) described the use a "teen-centered methodology" (p. 255) that allowed ninth grade students, through their participation in focus group interviews, to have "a naturalistic forum in which to express their views" (p. 257). We took this teen-centered methodology a step further than recruiting high school students as study participants; we trained high school students to conduct focus group interviews in their schools. Rather than begin with a priori theories and existing themes in the literature on adolescent tobacco, our goal was to inductively understand students perceptions of and experiences with tobacco use. From a critical perspective (Carspecken, 1996), we believed that student-led focus group interviews would emphasize students' voices about tobacco use in the schools, empower student co-researchers and participants, and create a better power balance between students and us, as university personnel.

Members of our research team worked with key administrators to identify a liaison teacher who could oversee the project in each school and help recruit co-researchers. Sixty six students from the four high schools volunteered to be co-researchers in the multi-site study. The students were either part of a class or an organized club. Table 1 provides an overview of the the high schools, co-researchers and study participants. The remainder of this section describes six phases of the research process and how high school students were involved as co-researchers.

Phase One: Recruiting Student Co-researchers

Liaison teachers at each of the schools assisted us in identifying potential co-researchers and setting up an initial hour-long interest session. At the interest session we described the history and purpose of the project, outlined co-researcher and teacher liaison responsibilities, discussed remuneration (a $500 stipend per school plus $50 for an end-of-project party for each group of co-researchers), and distributed parent and student informed consent forms to students interested in being co-researchers. When the co-researcher group was an organized class, we stressed that participation was voluntary and that alternative class activities would be available for students who chose not to participate.

Phase Two: Training

In early February, 1999, we provided three hours of training for each group of student co-researchers. We gave each co-researcher a packet of training materials, detailing key content. The training included a brief overview of qualitative research and specifically case study methodology. We instructed co-researchers in the details of using audio-recording equipment, qualitative sampling procedures, conducting focus group

interviews and recording detailed fieldnotes. We modeled focus group techniques for each group, then we had co-researchers practice interviewing, recording fieldnotes in short role play sessions, and receiving periodic feedback. During the training session we introduced the interview protocol we had initially developed and asked students for feedback regarding additional questions or ways we could make it more appropriate for teens and the specific school context. We discussed how to probe for clarification or elaboration using open-ended questions ("What do you mean by that?" "Can you tell me more about that?"). We discussed the process of obtaining informed consent from all participants, and parental consent from minors, and the importance of protecting participants' anonymity. In addition, we brainstormed with co-researchers about the best ways to recruit "information-rich" study participants at their schools.

Phase Three: Selecting Focus Group Participants

The co-researchers were responsible for recruiting focus group participants at their schools. They used purposeful sampling techniques to identify students, administrators and support staff who were willing to participate in the interviews. They purposefully selected a variety of participants, smokers and non-smokers, to provide a wide representation of views. Co-researchers at some schools recruited participants from existing classes that had a good cross section of students (e.g., psychology and English classes at one school). Others recruited participants from specific student groups that they believed would be information-rich (e.g., one school identified the punks, singers, basketball players, soccer players, cheerleaders, and track athletes). Though the primary focus of the study was on adolescent perceptions, co-researchers also recruited

administrators, teachers and support staff to provide triangulation of data (e.g., in one school the co-researchers distributed invitation letters to all teachers and staff).

Phase Four: Collecting Data

The co-researchers conducted thirty-seven focus group interviews in the four high schools from mid-February to early April, 1999. Thirty-one were student focus groups (n=205) and seven consisted of school personnel: administrators, teachers, and support staff (n=38). The co-researchers conducted the interviews in pairs or small groups, generally after school in a convenient location on each high school campus. While one co-researcher asked questions, another recorded fieldnotes in a field notebook and monitored the recording equipment. At the beginning of each session, co-researchers collected consent forms and anonymous demographic data about tobacco use from each participant. The facilitators used a semi-structured interview protocol, with seven open-ended questions, to guide the interviews. The interviews lasted 30 to 75 minutes, and were audio-recorded and transcribed verbatim by university support staff.

Phase Five: Analyzing Data

In two of the four schools we conducted separate training sessions to teach co-researchers how to analyze narrative data. Using guidelines for coding qualitative data (Miles & Huberman,1994; Tesch,1990), we simplified the analysis process into four steps. At the beginning of the training session, we stressed the importance of keeping all data confidential. We distributed handouts that provided general information about the qualitative data analysis process, ground rules for data analysis, simplified steps for analyzing narrative data (Appendix A), a transcript from one of the interviews students had conducted, and examples of visual data displays highlighting key themes. The co-

researchers read the transcript, coded the data and received feedback. At one of the schools, a sub-group of the co-researchers examined all of the transcripts from interviews conducted at their school and identified themes that emerged in the data.

We (the primary researchers) conducted our single case and cross case analyses separate from the co-researchers' single case analyses. However, we returned to the schools and conducted member checks with the co-researchers (and teachers and administrators) to explore the accuracy of our themes and interpretations.

Phase Six: Writing up the Results

Co-researchers at two of the high schools were involved in writing up the results of their single case analysis. A co-researcher at one school wrote a summary of the study for the student newspaper. Four co-researchers at another school submitted a case report for a graded class project in an advanced psychology class and planned to submit their revised paper to a psychology journal for publication. One of the university researchers worked closely with these co-researchers, specifically addressing how to construct a qualitative report.

The Findings

Lessons Learned: Perceptions of Tobacco Use in Schools

Since the primary focus of this paper is on lessons learned working with high school students as co-researchers, only a brief description of the findings of our multi-case study will be reported here. However, a summary of the results of the study has been included to illustrate the richness of data collected by the student co-researchers. After analyzing our single cases and constructing detailed single case reports, we completed a cross-case analysis. Seven common themes emerged across all cases: desensitization to

tobacco use because of pervasive exposure to it; reactions to tobacco use; reasons teens smoke; lack of enforcement of school policies; the consequences of smoking; quit attempts; and the lack of media influence. These themes are briefly summarized below.

High school students believed they had been "desensitized" to the use of tobacco because of their exposure to it. They perceived that "everybody" smoked, and they saw it "everyday" ("after school, before school, during lunch, anytime"), and "everywhere" ("at home", "in public places", "at work" and "at school").

Consequently, students' reactions to tobacco use included indifference, acceptance and tolerance ("it just doesn't seem like a big deal to me", " who cares?", "If somebody's smoking, you can still talk to them. It's not like they're bad people"). The decision to use tobacco was viewed as a personal "choice" ("it's their decision", "it's my business if I smoke"). Students questioned, "where is it my place to tell someone not to smoke?" and suggested it was not "the school's business to regulate what you, what I do".

Inconsistent or lenient enforcement of school tobacco policies emerged as a common theme across all schools. Students were aware of school policy and sanctions but many said that rules were "not at all" enforced. Some indicated that the policy was "not working at all" and perceived that the administrators and staff did not "care all that much", particularly in light of the kinds of "bigger" problems high schools could have. Even teachers and staff described enforcement as "sporadic" and said, "teenagers think of tobacco usage as lower on the scale of bad things that kids do". Students and adults alike recognized the difficulties in enforcing tobacco policies with masses of students and said consistent enforcement would be almost impossible unless "you're going to stand out there (where students smoke) every single day".

Participants described the reasons they believed teens began and continued to smoke. Those reasons fell into three categories: personal reasons, peer influences, and adult influences. Smoking appealed to teens because it looked "fun" and "cool". Many started because they were "just curious", some because they wanted to "lose weight". Several cited "easy access" as a contributing factor. Teens both started and continued to smoke because their friends were doing it. Many students were unwilling to concede that "peer pressure" was a reason, but clearly the data indicated that peer influence was powerful: others were smoking and they wanted to be accepted. In addition, several students described the influence of parents, siblings and other relatives who smoked.

Overall, students were aware of the negative health risks of using tobacco, however, they were so focused on the here-and-now that the long-term risks seemed inconsequential. They recognized short-term consequences, like "yellow teeth", "funky" breath like "bad barbecue", the pervasive smell that affected their hair, clothes, fingers, and cars, and the effects on athletes. The adult participants suggested that, despite students' awareness of the risks, they "don't recognize their own mortality", they "think they will live forever". Students quipped, "it's not affecting me right now". One student acknowledged, "you still think you're invincible".

Teens' quit attempts emerged as a common theme across the cases. There was a disparity between perceptions about and the reality of quitting. Several participants believed teens could "quit anytime" if they had the willpower and wanted it "bad enough". However, in reality quitting was described as "incredibly difficult" and "absolute hell". Teens who had tried to quit had not only experienced psychological effects (e.g., the loss of their "routine", having something to do with their hands) but also

physiological effects (e.g. "intense shaking", throwing up, insomnia, mood swings). Most quit attempts were described as short-term or temporary. Students offered a variety of strategies for quitting (e.g., "cold turkey", "switching friends", "giving away your lighters", "cutting down", "switching to ultra lights", "quitting with someone else") but none of the strategies were perceived to be effective for teens.

The final common theme that emerged from the analysis was the overall perceived lack of media influence on teens. Students minimized the importance of the media in contributing to teen tobacco use. Students described tobacco advertising as "lame" and "unrealistic" and geared more toward children (e.g., Joe camel is "cute") or adults. Students indicated that ads did not make them "want to smoke" and some students concluded that it was "silly" to blame teenage smoking on the media. An exception to this was that some students paid particular attention to ads designed to discourage teens from smoking. Also, the adult participants seemed to believe the media had far greater influence on teens than did students.

Lessons Learned: Involving Students as Co-researchers

Throughout the course of this project our research team spent a significant amount of time discussing our experiences working with high school students and teachers. We reflected on the lessons we learned that could aid us and others in refining the process for collaborating with high school students as co-researchers. Based on our learning, we have constructed an activity guide (Appendix B) that others could follow in involving high school students as co-researchers in site-based research. Key activities are outlined for each phase of the research project.Table 2 summarizes successful strategies and potential problems that may exist as a result of engaging high school students as co-researchers.

Those strategies and potential problems are discussed in the remainder of this section, organized by the phases of the project.

Recruiting schools.

Several key strategies enabled our research team to successfully gain access to four diverse high schools in two large cities and a small town. Careful planning and strategic contacts allowed us to access the sites with relative ease. Project materials were carefully designed and organized and funding was secured in advance. We submitted formal requests for Institutional Review Board (IRB) approval and school district approval early and received permission to conduct the project prior to contact with the schools. At early team meetings we identified several potential sites and discussed the merit of studying those sites, including whether or not they would provide diverse and multiple perspectives and the feasibility of gaining access to the schools.

In order to gain access we initially relied on our research team members' personal contacts with school administrators (i.e., principals and associate principals) in the target schools. We met face-to-face with administrators and shared our general research plan, including our desire to partner with teachers and students in the school to conduct the study. Administrators were presented with a one page summary of our research plan. We stressed our willingness to be flexible to accommodate the particular school environment and the potential benefits to the co-researchers (learning about research methods firsthand and skill development) and to the school (receiving feedback on a student health issue). We also discussed reciprocity; i.e., how the school, teachers and students would be remunerated for involvement in the project. Each school received a $500. stipend plus $50. designated for a celebration for the co-researchers. Discussion of our past pilot study

at another school added to our credibility. The tenor of this initial meeting was that of brainstorming and creative problem solving in order to explore ways to maximize the experience for both the research team and the school.

Through prior work with or knowledge of teachers at each of the schools, and discussions with the administrator, we identified potential teacher liaisons who could introduce us to groups of potential co-researchers and who could act as local project coordinators. In selecting these teacher liaisons we considered teacher experience and workload (e.g., we did not want to over-burden a new teacher). An introductory meeting was scheduled with individual teacher liaisons (with or without the administrator) with the intent of introducing our project to them and mutual problem solving in terms of adapting our study to their particular class or club. We worked closely with teacher liaisons, especially at the beginning of the project, to ensure that they understood their role in the project, and could supervise the student co-researchers and research process.

We avoided recruiting schools where difficult logistical problems might exist. For example, in the initial phase of this project we considered two sites that fit our criteria and might provide us with interesting data. A small, private Christian school on the outskirts of one city may have provided a unique, small-school perspective. However, tobacco use among students was strictly forbidden and we believed students would be inhibited discussing their smoking behaviors openly in groups, and could potentially put themselves at risk of expulsion. Other team members visited with an administrator at an alternative school, which would have provided data from a distinct group of at-risk students who were primarily smokers. However, most students did not live at home and getting parental consent would have been difficult. There was also concern about the

ability of these academically marginal students to carry the project to completion. In addition, the liaison teacher assumed a passive role and did not engage in active problem solving during our initial conversations. As a result of these potential problems, we selected other study sites. However, exploring access to these sites delayed the project slightly.

Recruiting student co-researchers.

The venue from which we selected the co-researchers clearly impacted the quality of the project and its overall facilitation and supervision. Two of the primary researchers worked with students who were enrolled in classes (advanced psychology and honors government). The liaison teachers allowed us to use multiple class sessions for training, had daily contact with students and closely monitored the project, and helped students apply their learning from the project to a larger context. Co-researchers who were enrolled in classes received class credit for the work they did. Since it was important that participation in the project was voluntary, we worked with liaison teachers to ensure that alternate in-class activities were provided for students who did not want to participate.

During the initial student interest session, we described incentives for school and student involvement in the project and helped co-researchers understand how their involvement in the project would benefit them. At one school, the co-researchers saw the direct benefit of the $500. school stipend (the stipend contributed to a scholarship awarded to one of the advanced psychology students). In the interest session we also discussed the opportunity for co-researchers to learn about qualitative research methodology, and develop skills through specific training sessions and through their involvement in a "real" research project with university faculty.

Although working with co-researchers who belonged to clubs (e.g., student council, students against destructive decisions) worked fairly well, it was more difficult than working with students who were enrolled in classes. In these situations, liaison teachers had less contact with students, and were not able to monitor the research project as closely. In addition, these organizations were working on multiple projects. At times it seemed that this study was one more project the co-researchers needed to complete and their investment was not always high. In addition, the club structure provided the potential for inequitable student workloads.

Training.

The primary researchers assigned to each high school conducted three to four hours of training for the co-researchers. Scheduling an adequate amount of training time (a minimum of three hours) and scheduling it during designated class or club meeting times contributed to the success of the project. Providing contextual information about the project and the problem addressed in the research (i.e., little has been written about adolescent smoking) helped co-researchers understand the need for the study. Providing an overview of qualitative research extended co-researchers' knowledge-base about research methods and ways to gather data about a complex human phenomenon. Using an active-learning training model where we first modeled focus group interviews and then discussed the mechanics of conducting them enabled students to learn about the concept experientially first. Students were then given the opportunity to practice facilitating focus group interviews with their peers, and alternately record fieldnotes. Every few minutes we stopped the process to provide feedback and alternated student facilitators. Outlining co-researcher and teacher liaison responsibilities verbally and in writing communicated

our expectations to students and teachers and helped them assess the time commitment that would be required. Providing all training materials in packet form allowed co-researchers and liaison teachers to reference the materials when necessary. Working with liaison teachers who could help students process the training information in subsequent class sessions and answer their questions also contributed to the success of the project.

Due to class and club time limitations, scheduling three to four hours of training was problematic in some schools, yet we believed adequate training time was critical to the success of the project. As a result, in some cases the training extended over multiple class periods or meeting times. This did not seem to be problematic if the sessions were scheduled on concurrent days. However, it raised the potential problem of attendance, and co-researchers missing part of the training. In one school, the teacher liaison chose to address this issue by assigning lesser roles to co-researchers who had missed part of the training (i.e., greeting participants, monitoring equipment, recording fieldnotes rather than facilitating the interview). Liaison teachers advised us against scheduling training outside of designated class or club times because this clearly presented problems for students with work, extra-curricular and other time commitments.

Recruiting focus group participants.

Our research team clearly identified a criteria for the selection of focus group participants. We wanted diverse and multiple perspectives, from smokers and non-smokers, and primarily from adolescents but also from adults (teachers, administrators, support staff). As outsiders to the schools, we realized our limitations in identifying participants who fit the criteria. We relied on co-researchers and teacher liaisons to identify specific groups or individuals within their schools who would be information-

rich. We also relied on co-researchers and teacher liaisons to extend the invitation to participate in the study to individuals in their schools. We believe this contributed to participants' interest in the project, the number of individuals willing to participate in the interviews (n=243), and the number of focus group interviews conducted (n=38). Some of the adolescents who participated in the focus group interviews belonged to intact peer groups (e.g. the cheerleaders, the soccer team). Using intact peer groups provided easy access to participants and facilitated the process of securing informed consent because students were accessible during common meeting times. It also provided insight into particular peer sub-cultures.

On the other hand, interviewing intact peer groups may have inhibited the expression of differing viewpoints and may have potentially jeopardized participants' anonymity. In addition, recruiting groups based on convenience may have resulted in obtaining limited perspectives on the issue. At two schools the co-researchers had difficulty recruiting enough adults for the interviews; teachers and support staff were under-represented. Co-researchers may not have been comfortable enough to persist in recruiting teachers and staff.

Collecting data.

During the data collection phase, several strategies contributed to the success of this collaborative project. We believed that the best way to gather honest information from adolescents about perceptions of and experiences with tobacco use was to train adolescents to conduct the interviews. Using a teen-centered methodology was the most effective way to bring adolescents' voices to the dialogue about tobacco use and policy issues. Though we had initially designed an interview protocol, during training we asked

co-researchers to critique the protocol to ensure that it addressed the issues they believed were important and that the language was appropriate for adolescents. We used a simple, standard interview protocol with a small number of open-ended questions and included key probes on the protocol. Overall, having a simple, readable protocol with white space in front of them helped co-researchers stay focused on the questions, gave them confidence in asking the questions, and supplied probes that they could use to gather more in-depth information. We also trained co-researchers to listen carefully to responses and when appropriate, use standard probes for clarification or elaboration. Since part of the qualitative experience is recording detailed fieldnotes, we instructed co-researchers on how to do this and provided a field notebook and template with space for them to use when writing notes. We modeled recording fieldnotes for co-researchers during the training session and shared our detailed notes with them. A co-researcher was designated to take fieldnotes as a back-up at each focus group interview, which provided contextual information about the interview process.

Several other strategies seemed to facilitate the data collection phase of this project. We provided co-researchers with a specific time frame for completing the interviews, which helped them plan their schedules. We specified the need to limit focus groups to manageable numbers (six to eight individuals), particularly since co-researchers had never conducted group interviews. We provided each school with high quality equipment and omni-directional microphones to get the best quality audio recordings possible. Since it was not feasible for us to be in the schools daily, we also delegated responsibilities for monitoring the research process, checking out equipment and storing data to the teacher liaisons. This kept liaison teachers involved in the study's progress.

One of the challenges in this project was how to address our ethical responsibilities, particularly securing parental consent. The physician who was the principal investigator on the project wrote a letter to parents, explaining the purpose and procedures of the study, and addressing ethical issues such as voluntary participation. This letter was attached to a parent consent form. We worked with co-researchers at all four schools to develop strategies for distributing the consent forms, and stressed that minor students could not participate as co-researchers or in the focus groups without parental consent. Minor students also had to sign youth assent forms, and adult participants had to sign informed consent forms. After the co-researchers identified participants they distributed the consent forms a few days prior to the interviews. Then, at the beginning of the interview the co-researchers collected all consent forms and put them in a sealed envelope.

Some aspects of the data collection process were problematic. For example, though we had specifically addressed the issue during training, some co-researchers had difficulty asking all the questions as they were stated on the interview protocol. In examining the transcripts we also discovered that the co-researchers sometimes missed opportunities to probe for deeper information. It was also apparent on the tapes that some had difficulty handling group dynamics, particularly dealing with dominant individuals and drawing everyone into the conversation. Co-researchers' fieldnotes also had varying degrees of detail. In retrospect, the training sessions may not have provided enough time for students to process or practice these skills.

Logistical and mechanical problems affected the quality of data we received. At most schools, the co-researchers had little control over the environments in which the

interviews were conducted. For example, at one school the co-researchers scheduled interviews in the library conference room, presumably a "quiet" place. However, depending on room availability, two of the three conference rooms were separated by a partition, and meetings were conducted simultaneously on the other side of the partition. Consequently due to background noise, the audio tapes were of variable sound quality and some were difficult to transcribe, even with high quality equipment. Co-researchers were also inexperienced in using mechanical equipment; we spent little time practicing this during the training session. At one school equipment failure resulted in the loss of data from several interviews.

Analyzing data.

Our research team's original intent was to involve co-researchers in the data collection phase of the project. However, the primary researchers who worked with students at the two sites where the co-researchers were enrolled in classes extended that involvement. The liaison teachers were willing to provide additional class time for training in qualitative data analysis and this provided an opportunity to gain students' perspectives on the data as well as provide learning about qualitative analysis. However, one liaison teacher suggested that our complex, multi-staged analytic process was too advanced for high school students, and suggested that we reduce the process to a few simple steps. As a result, we developed a four step analytic process and developed training materials that illustrated the use of the four steps. During the training session, we had co-researchers work with a transcript from an interview that co-researchers had conducted at their school. The co-researchers practiced coding data and identifying major ideas and we provided feedback about their analysis. At one of the schools a sub-group of

the class (four students) constructed a single case study from the data collected at their school for a class project. They analyzed the data from all ten interviews. The primary researcher guided the students in the process, though the students and researcher analyzed the data independently. When they compared their analysis, their identification of major thematic ideas was very similar. This gave students confidence in their work. Even at the schools where students were not involved in the analysis process, the primary researchers took the themes and interpretations they had identified from the analysis back to the co-researchers for feedback. This provided a form of member checking and helped us assess the accuracy of our interpretations.

There were concerns about involving co-researchers in the data analysis phase. The first concern was ethical. We recognized that giving co-researchers access to the raw data raised a potential for breech of confidentiality, particularly when they had collected the data and could identify participants and quotes. We addressed this issue in the training session by stressing confidentiality and ethical guidelines, and collecting the transcript co-researchers analyzed during practice at the end of the class period. We did not resolve this issue with the sub-group that analyzed all the data from their school, except to rely on the liaison teacher to monitor their use of the transcripts. The second concern was logistical. Since the year-end was approaching, it was difficult to schedule adequate training time to teach co-researchers about qualitative analysis. As a result, the co-researchers received a cursory introduction to it. The small number of co-researchers who were involved in analyzing all of the data collected at their school had to devote time to it outside of class. The third concern was methodological. Due to time constraints and interest only a select group of co-researchers were involved in data analysis. Though we

conducted member checks with the co-researchers after we had analyzed the data, we did not incorporate their perspectives during the analysis process.

Writing up the results.

Co-researchers at one high school elected to develop a single case study for submission as a class project and to a scholarly psychology journal. Receiving course credit provided an incentive for co-researchers and increased their investment in the project. Providing them with a copy of the pilot study written by our research team gave them a template for their report. In addition, providing co-researchers with handouts and specific instructions for writing a qualitative report gave them the framework necessary to develop the case study. Referencing co-researchers' prior learning that was applicable to this project helped them integrate concepts they had learned in other classes with their growing knowledge of qualitative research. For example, the co-researchers knew how to construct an introduction using a narrative hook to capture readers' attention, incorporate related literature into the statement of the problem, write a quantitative methods section, follow APA style, and address ethical issues such as informed consent. The co-researchers' involvement in this project allowed them to apply those concepts in a collaborative research project.

The problem with the writing phase of the project was that year-end was approaching and most co-researchers did not have the time or interest in writing up the final project. This was particularly true if the project was not for credit. As a result, we had minimal co-researcher involvement in this phase and lost the interpretive dialogue that occurs during the collaborative writing process. At the site where co-researchers were constructing the case study, it was also not feasible to follow the writing process

through to the end. As the term ended, the responsibility for supervising project completion was left to the liaison teacher.

Implications

This paper illustrates that university faculty can successfully partner with high schools through collaborative research projects with students. This has several implications for future collaborative efforts in schools. One implication is the potential for introducing qualitative research into the high school curriculum. Some science and social science courses at the high school level introduce students to quantitative research methods. As high school students collaborate with university faculty on qualitative projects, they will begin to integrate new knowledge about qualitative research with prior learning about quantitative methods and writing, which will give students a more comprehensive view of research methodology. Students will also develop new skills (e.g., facilitating interviews, framing open-ended questions, probing for depth, listening, analyzing and interpreting data) through active participation in real-life research projects. Successful collaborative experiences may also increase high school students' self-efficacy and give them confidence that they have something to contribute to their peer group and the adult community.

Involvement with university faculty in collaborative qualitative studies may provide high school students with a forum for proactively addressing issues that are significant to them. At times adolescents become passionate about causes, but may not know how to address them or believe they have the power to do so. Qualitative projects that explore issues relevant to adolescents, particularly using a teen-centered

methodology, may empower students to more proactively engage in addressing those issues.

A recent study illustrates how collaboration with adults empowered adolescents to address a teen health issue. According to a Department of Health survey, the number of middle school students in Florida who smoke "dropped nearly half" from 1999 to 2000. This decrease was attributed, in part, "to the state's 2-year old tobacco control project, an education and ad campaign partly designed by students" (Lincoln Journal Star, 2000, 2A). Another state plans a similar collaborative venture with adolescents. On March 29, 2000 Nebraska's governor signed a bill allocating $21 million over three years into a "comprehensive, statewide anti-tobacco program" (Lincoln Journal Star, 2000, 1A). As part of this initiative, "the Teen Tobacco Educational Prevention Project will enlist teenagers…in designing anti-tobacco campaigns" (Lincoln Journal Star, 2000, 10A). These examples illustrate the potential for and necessity of successful collaboration with high school students in the school context. Whether the collaboration focuses on research or programmatic efforts, university faculty can be instrumental in helping students access resources for projects and train and mentor them to implement those projects in their schools.

Another implication of this project is that successful partnerships between university faculty and high school students may serve as a springboard for additional teen-centered studies and programmatic efforts. For example, the success of our collaboration with teenagers during our early study resulted in the development and implementation of a peer counseling program that was piloted at the same high school last year. Non-smoking students were trained to deliver smoking messages at periodic

times to peers who were smokers, to assess whether peer intervention affected their smoking behavior. Currently members of our research team are training students at two high schools to use narrative inquiry techniques (Clandinin & Connelly, 2000) to address an underexplored issue in the literature; how adolescents quit smoking. Students are collecting, analyzing and presenting stories from teenagers who have tried to quit smoking. These continued collaborative efforts fit into our multi-year project's long-range goal to address adolescent smoking prevention and cessation.

Collaborative partnerships will also have implications for university faculty, teachers and schools. Collaboration will allow university faculty to build strategic alliances with school administrators and teachers and give faculty the opportunity to provide public service to the schools. Working with high school students as co-researchers may provide university faculty with a window into adolescents' worlds, which may otherwise be difficult to access. Adolescents are the gatekeepers who can allow university faculty entry into peer sub-cultures.

Collaboration with university faculty can provide high school teachers with the opportunity to learn about qualitative research methods. University researchers may serve as mentors to teachers, sharing methods and materials with teachers. Eventually those teachers may translate their learning about qualitative methodology into their courses.

Ultimately schools may benefit from collaborative relationships with university faculty. Partnering schools may gain a positive reputation for encouraging authentic student experiences through collaboration that extends beyond the prescribed high school curriculum. These partnerships may provide additional resources for addressing adolescent issues in the schools and a framework for addressing them.

This paper describes the phases of one collaborative research project between university faculty and high school students at four schools. It explores the successes and problems our research team encountered logistically, methodologically, and ethically during the phases of the project. The paper provides an activity guide for individuals interested in establishing collaborative relationships with high school students. It outlines the implications for continued collaborative partnerships, including implications for high school students, university faculty, teachers, and schools. Finally, this paper poses several questions that should be addressed as collaborative relationships between university faculty and high school students are considered:

1) How can university faculty sufficiently supervise the research process to ensure that the data student co-researchers collect in their settings are dependable and trustworthy?
2) How can participant anonymity be safeguarded and confidentiality assured with the use of a teen-centered methodology?
3) How can university faculty help high school students negotiate dual roles as student/peer and co-researcher throughout the research project?
4) What long-term value will faculty-student collaboration have for adolescents? Can the skills they develop through the collaborative project (i.e., identifying a problem, gathering data, analyzing and interpreting data, making recommendations) transfer to other problem-solving situations adolescents face and further empower students to become proactive in issues that concern them?

5) How can university faculty, school administrators and teachers, and high school students enter into collaborative relationships with parity, recognizing the expertise and unique contributions that all individuals bring to the partnership?

6) Since the role of the liaison teacher is critical to the success of a collaborative project of this nature, how can university faculty encourage teacher involvement despite the additional workload it will require, and ensure that the involvement is meaningful to teachers?

7) We suggested that the most effective collaboration occurred with co-researchers who were enrolled in classes. Given today's educational climate with intense scrutiny of student performance, mandated standards and assessment, public accountability and pressure to raise test scores, can teachers and administrators justify allocating class time to collaborative partnerships, or will the potential for collaboration be eclipsed by the burgeoning expectations to raise student achievement quantitatively?

References

Ads by Florida students cited with cutting teen tobacco use. (2000, March 2). The Lincoln Journal Star, p. 2A).

Atkinson, P., & Hammersley, M. (1994). Ethnography and participant observation. In N.K. Denzin and Y.S. Lincoln (Eds.), Handbook of qualitative research. (pp.248-261). Thousand Oaks, CA: Sage Publications, Inc.

Carspecken, P.F. (1996). Critical ethnography in educational research: A theoretical and practical guide. New York: Routledge.

Clandinin, D.J., & Connelly, F.M. (2000). Narrative inquiry: Experience and story in qualitative research. San Francisco, CA: Jossey-Bass.

Ginsburg, K.R. (1996). Searching for solutions: The importance of including teenagers in the research process. Journal of Developmental and Behavioral Pediatrics, 17, (4), 255-257.

Grafanaki, S. (1996). How research can change the researcher: The need for sensitivity, flexibility, and ethical boundaries in conducting qualitative research in counseling/psychotherapy. British Journal of Guidance and Counseling, 24, 329-338.

Miles, M. B., & Huberman, A.M. (1994). Qualitative data analysis: An expanded sourcebook (2nd Ed.). Thousand Oaks, CA: Sage Publications, Inc.

Reason, P. (1994). Three approaches to participative inquiry. In N.K. Denzin and Y.S. Lincoln, (Eds.)., Handbook of qualitative research. (pp. 324-339). Thousand Oaks, CA: Sage Publications, Inc.

Sperling, M. (1989). I want to talk to each of you: Collaboration and the teacher-student writing conference. Pittsburgh, PA: Center for the Study of Writing.

Staik, I.M., & Rogers, J.S. (1993). Involving undergraduate students in educational research: Achieving two goals at once. Montevallo, AL: University of Montevallo.

Stoddard, M. (2000, March 30). State declares war on tobacco: Plan among the biggest in nation. Lincoln Journal Star, pp. 1A, 10A.

Tesch, R. (1990). Qualitative research: Analysis types and software tools. Bristol, PA: Falmer Press.

Table 1: Overview – High schools, Co-researchers, Participants

School (Pseudonym)	Midtown High School	Community High School	Rural High School	Urban High School
Size of School	2000	2000	550	1300
Student Co-researcher Affiliation	11th & 12th Grade Advanced Psychology Class (n=19)	Student Council (n=13)	Club: Students Against Destructive Decisions (n=10)	10th Grade Honors Government Class (n=24)
# of Student Focus Groups/ # Participants	7 (n=67)	6 (n=31)	8 (n=45)	10 (n=62)
# of Teacher, Staff, Admin Focus Groups/ # Participants	3 (n=17)	1 (n=8)	2 (n=9)	1 (n=4)
Total # of Focus Groups/ Participants	10 (n=84)	7 (n=39)	10 (n=54)	11 (n=66)

Totals:
31 student focus groups (n=205)
7 adult focus groups (n=38)

Table 2: Engaging High School Students as Co-researchers: Successful Strategies and Potential Problems

Phases of the Project	Successful Strategies	Potential Problems
Recruiting Schools	♦ Contacting administrators we knew and who were familiar with our work ♦ Meeting face-to-face with key administrator(s) to discuss the project ♦ Stressing the researcher team's flexibility ♦ Addressing reciprocity for schools, liaison teacher(s) and student co-researchers ♦ Sharing previous work (pilot study) with administrator(s) ♦ Applying early for IRB and district approval ♦ Adapting methods to specific school environment/flexibility ♦ Identifying key teacher liaison(s) who would participate actively ♦ Working closely with teacher liaison(s)	♦ Selecting sites where difficult logistical problems might exist, such as: - Private church school potentially too risky for students to discuss smoking openly - Alternative school where most students did not live at home (made getting parental consent difficult) ♦ Identifying passive teacher liaison(s) unwilling to engage in problem solving or project supervision
Recruiting Student Co-researchers	♦ Working with students enrolled in a class (e.g. advanced psychology, honors government) ♦ Providing alternative activities, so participation was voluntary ♦ Identifying incentives: School stipend, student learning opportunity/skill development through real research project	♦ Working with organized clubs (raised the potential for inequitable student workloads–some students did less or no work, varying degrees of student investment, less frequent contact with the teacher liaison)

Training	♦ Scheduling adequate training time – minimum of three hours (increased the quality of the project) ♦ Scheduling training during designated class/club meeting times ♦ Providing training materials in packet form so students could refer to them later ♦ Providing contextual information about the project, qualitative research, student and teacher roles ♦ Using an active learning training model: Teach the concept – Model it – Students Practice – Provide Feedback ♦ Working with liaison teacher(s) who could help students process training information in subsequent sessions	♦ Scheduling an inadequate number of hours for training (directly correlated with the quality of students' work) ♦ Scheduling multiple training sessions over time (raised the possibility of attendance problems, with some students receiving partial training) ♦ Scheduling training outside of designated class or club times (presented problems for students with work, school and other time commitments)
Recruiting Focus Group Participants	♦ Specifying clear criteria for selection (e.g., diverse/multiple perspectives – smokers and non smokers, students and adults) ♦ Relying on student and teacher input to identify specific groups or individuals within their specific contexts who would be information-rich participants ♦ Relying on students and/or liaison teachers to extend the invitation to participate ♦ Recruiting in-tact peer groups facilitated access to students and securing consent, and provided insight into peer cultures	♦ Recruiting too few adult participants (low # of teachers, no support staff at 2 schools) ♦ Recruiting groups based on convenience (may have resulted in limited perspectives) ♦ Interviewing in-tact peer groups (may have inhibited expression of differing viewpoints) ♦ Interviewing in-tact peer groups (may have potentially affected participants' anonymity)

Collecting Data	♦ Using a "teen-centered" methodology (i.e., student-led focus groups) ♦ Modifying interview protocol based on student input to reflect language appropriate for teens ♦ Using a simple, standard protocol with open-ended questions ♦ Including probes on the protocol and training in using standard probes ♦ Providing a field notebook and template for field notes (as a back-up if equipment failed) ♦ Setting specific deadlines for completion of the interviews ♦ Limiting focus groups to a reasonable number of participants (n=6-8) ♦ Using high quality equipment/omni-directional microphone ♦ Delegating responsibilities for monitoring the research process, checking out equipment and storing data to teacher liaison(s) ♦ Working with co-researchers to develop strategies for securing youth assent, parent consent and adult consent prior to data collection	♦ Straying from the basic interview questions ♦ Probing insufficiently ♦ Handling group dynamics with lack of experience (i.e., dominant individuals, hecklers, silent participants) ♦ Selecting environments not conducive to quiet interviews (resulted in variable sound quality of audio tapes) ♦ Capturing too few details in fieldnotes due to lack of experience ♦ Handling equipment problems (mechanical failure resulted in loss of data at one school)

Analyzing Data	♦ Simplifying analysis steps to high school level (initial elaborate coding schemes were inappropriate for high school students) ♦ Providing training in qualitative analysis ♦ Using "live data" in training session (data students had collected) ♦ Having students practice analyzing data and receive feedback ♦ Conducting member checks with co-researchers – primary researchers analyzed data and checked out interpretations with students ♦ Comparing students' analysis with researcher's analysis (closely matched-gave students confidence)	♦ Giving students access to the raw data raised the potential for breech of confidentiality ♦ Providing too little training and time for analysis ♦ Having only a select group of students at two schools involved in analysis due to time constraints and interest (resulting in the loss of student co-researcher perspective in analysis in most schools)
Writing up the Results	♦ Providing co-researchers with our pilot study as a writing guide ♦ Providing specific instructions for qualitative reports ♦ Referencing students' prior knowledge-base (e.g., how to write an introduction with a narrative hook, review literature, use APA style) ♦ Giving students class credit for the project (greater investment)	♦ Allowing the project timeline to coincide with the year end (resulted in lack of student follow through) ♦ Having limited student involvement in the writing stage (only a small number of students at one school were involved in writing up the results)

Appendix A:

Steps for Qualitative Data Analysis

Some general observations about the qualitative data analysis process:

- Qualitative data analysis is a process of data "**reduction and interpretation**" (Marshall & Rossman, 1989, p. 114). Qualitative researchers generally collect a voluminous amount of data, and systematically try to reduce them to manageable units of information, and then interpret them.

- Tesch (1991) calls the analysis process a process of "**decontextualization and recontextualization**"...data are taken apart (segmented into smaller units) and put back together again. The goal is to "identify a larger, consolidated picture" of what the data say/mean (p. 97).

- Data collection and analysis are generally **simultaneous activities**...while researchers are analyzing the data, and seeing patterns emerge, they are focusing their research activities and using the emerging information to help shape further data collection.

- The process is **inductive**. Researchers are not beginning with preconceived theories or hypotheses to test, rather, they are letting themes and patterns emerge from the data...so qualitative analysis is really data driven.

- The process is **eclectic** and **flexible**. This is no one right way to analyze qualitative data. There are guidelines, but not specific recipes for analysis.

Ground rules for coding —

1) Do not share the transcript with anyone outside your class. Keep the data confidential.
2) Do not make a copy of the material for anyone else.
3) Try to bracket or suspend your preconceived notions about what you will find, and focus on the data. Listen carefully to what participants have said – it is their realities that you want to represent.

Basic Guidelines for analyzing narrative data:

Step 1

Read through the entire transcript carefully, asking yourself as you read "What is this about?" Try to get a general sense of the main ideas participants are talking about in this interview. Keep in mind that you want to identify a manageable number of key ideas (6 – 10). As you read, you may want to write down key ideas in the RIGHT margin. This first reading helps you get a "sense of the whole" by reading the transcript in its entirety.

Step 2

Read through the transcript again, slowly. Examine the data, sentence-by-sentence or chunk-by-chunk, looking for key words or phrases that participants say that seem to describe their opinions and feelings about the issue. Underline or put brackets around these key words or phrases. AND at the same time, on the LEFT margin of the transcript, write down one to two word codes that really describe what participants said. Use their words, not yours, if possible. There may be places throughout the transcript where people repeat ideas. When possible, try to use the same one to two word code each time.

Step 3

Once you have coded the transcript, think about how the codes relate to each other, and what concepts or key ideas they represent. On a separate piece of paper or on the back of the transcript, identify what you believe are 6-10 key ideas (or themes) that participants are talking about. Then write a few sentences about each key idea.

Step 4

For those who are working with all of the transcripts, you might consider trying to build a visual data display that identifies key themes, and sub-themes or concepts related to each major idea.

Appendix B:

An Activity Guide for Involving High School Students as Co-researchers in Site-based Research

Project Initiation

- Develop a clear research plan (Purpose, Research Questions, Methods,
- Instruments/Protocols)
- Develop project management materials/ handouts for site, researchers, liaison teachers
- Develop training materials for trainers and student co- researchers
- Obtain IRB (ethics board) project approval
- Determine remuneration/reciprocity for researchers, sites, participants
- Secure funding

Site Access

- Identify site(s) based on criteria (information-rich, diverse)
- Obtain district approval
- Identify and contact key gatekeeper(s) at the site
- Meet with gatekeepers and obtain site approval
- Determine appropriate timeline for the study
- Identify and meet with teacher liaison to outline project, teacher liaison responsibilities, co-researcher responsibilities, research plan and materials, equipment management/storage

Recruitment and Selection of Co-researchers

- Identify student group(s) (recommend established class)
- Develop flyer introducing the project, research opportunity and interest session
- Conduct an interest session to outline the project
- Provide an overview of the project (purpose, methods, timeline, teacher liaison responsibilities, student co-researcher responsibilities, remuneration, desired outcomes)
- Provide a sign-up sheet for interested individuals
- If an in-class project, assure that an alternative activity will be provided (voluntary participation)
- Distribute student assent and parent consent forms to interested individuals
- Announce training dates/location (on-site, convenient times)

Conduct Training

- Collect assent/consent forms
- Model a focus group interview, with co-researchers as participants (discuss experience)
- Distribute training materials (packet/handouts)

- Introduce qualitative research/case study methodology and purposeful sampling techniques
- Discuss mechanics of conducting focus group interviews, recording fieldnotes, working with audio equipment
- Review interview protocol and revise to fit site
- Role Play – co-researchers practice facilitating interviews, recording fieldnotes, using equipment
- Provide feedback periodically during role play, switch facilitators/recorders
- Discuss timeline and all project logistics/responsibilities
- Discuss criteria for participant selection and best recruiting strategies
- Provide guidelines for equipment check-out and storage (tape recorder, tapes, field notebook)
- Provide guidelines for data management (tapes, fieldnotes)
- Discuss ethical guidelines (co-researcher responsibilities, participant rights)

Data Collection

- Recruit study participants based on criteria for selection
- Distribute student assent and parent consent forms to student participants (prior to interview)
- Schedule interviews at convenient times and location(s)
- Assign co-researcher pairs/teams and responsibilities (facilitator, recorder, equipment manager, greeter)
- Check out recorder, tapes, field notebook
- Set up room and interview equipment/ test equipment
- Greet participants
- Collect assent/consent forms, consent forms from adult participants, demographic data sheets
- Conduct interview (facilitator requests introductions, facilitates interviews; recorder monitors equipment, greets latecomers, takes fieldnotes)
- Return equipment, tapes, fieldnotes to designated location
- Teacher liaison forwards tape and fieldnotes to researcher for transcription and analysis

Data Analysis

- Transcribe focus group interviews
- Develop handouts for training on qualitative analysis
- Simplify analytic steps to student level
- Schedule training session on qualitative analysis
- Provide an overview of qualitative analysis/steps
- Provide a sample transcript (work with "real" data)
- Co-researchers practice coding steps (with discussion/feedback)
- Co-researchers identify a small number of key themes/sub-themes (with discussion/feedback)

- Co-researchers develop a visual data display of key themes/sub-themes
- Co-researchers extract significant statements (quotes) as evidence of themes/sub-themes
- Co-researchers conduct member checks to determine the accuracy of the findings

Writing and Disseminating the Results

- Primary researchers provide guidance on constructing the written report (introducing the topic/purpose, identifying key audiences, discussing the significance, summarizing relevant literature, describing procedures, presenting and interpreting the results, making recommendations)
- Determine audiences for dissemination (internal dissemination – school newspaper, paper/class project, distribution to administrators and teachers; external dissemination – local newspaper, key stakeholders (board, district office), journal publication)